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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,734	12/16/2003	Mitsushi Maeyama	ASAIN0128	3639

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EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/735,734

Applicant(s)

MAEYAMA ET AL.

Examiner

Kevin P. Kerns

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,6 and 7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,6 and 7 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 10/123,140.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because "rotatation" should be changed to "rotation" in the 2nd line from the end of the amended abstract (on page 8 of amendment). Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claim 6 is objected to because of the following informalities: in the 1st line, "claim 1" should be changed to "claim 2", as claim 1 has been cancelled. Also in the 1st line, "step" should be added after "cutting" for further clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Timuska et al. (US 4,761,124) in view of Miyashita (US 4,224,727).

Timuska et al. disclose a screw-type rotary machine (supercharger rotor) and method for making it, in which the method includes providing a casting mold 20 defining a profile portion of the rotor, placing a steel shaft 8 defined by a screw helical portion (helical edges/lands 10 formed by milling/cutting, to form a helical core) within the mold 20 and affixed by central apertures (23,24) on the ends of the mold to hold the helical core, and casting the profile portion through injection region 25 into the profile portion cavity to form a cast portion that includes a hollow portion formed in the profile portion (abstract; column 1, lines 6-12; column 2, lines 52-68; column 3, lines 1-49; and Figures 1 and 2). Timuska et al. do not disclose the use of both left and right helical portions on the shaft surface.

However, Miyashita discloses a method of making a body of a hydraulic master cylinder that includes a helical shaft 1 with left and right handed helical grooves created between ridges 1a that cross each other (embodiment of Figure 6), followed by die casting of molten metal to form a cast outer body section 2 onto the outer periphery of the shaft portion of inner body portion 1 that has the left and right handed helical grooves created between ridges 1a, for the purpose of increasing the casting surface

area, thus obtaining stronger fusion bonding of the cast metal to the cylindrical interface of the cross-helical shaft, resulting in a strongly bonded integral cast structure (abstract; column 1, lines 48-58; column 3, lines 3-60; column 4, lines 20-65; and Figures 1-6).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the method of casting a supercharger rotor, as disclosed by Timuska et al., by using the helical shaft with left and right handed helical grooves that cross each other, as taught by Miyashita, in order to increase the casting surface area, thus obtaining stronger fusion bonding of the cast metal to the cylindrical interface of the cross-helical shaft, resulting in a strongly bonded integral cast structure (Miyashita; abstract; column 1, lines 48-58; column 3, lines 34-56; and column 4, lines 34-65).

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timuska et al. (US 4,761,124) in view of Miyashita (US 4,224,727) as applied to claim 2 above, and further in view of Gradel (US 5,516,240).

Timuska et al. (in view of Miyashita) disclose and/or suggest the features of claim 2 above. Neither Timuska et al. nor Miyashita specifically discloses the use of a plurality of cutting tools used in parallel in lathe work to cut multiple screw threads simultaneously.

However, Gradel discloses a process of using a milling lathe device for cutting simultaneous helical threads in parallel on a cylindrical workpiece (shaft), in which the process includes providing a workpiece 1 (shaft) that rotates via rotational movement of

a lathe drive, and providing a turning tool 3 having plural cutting edges 4 (having toothed lateral surfaces 41) parallel to the workpiece surface, being driven by tool drive means, such that multiple helical screw threads are cut simultaneously while using the same lathe, which is advantageous for reducing time that would otherwise be spent on successive machining operations (abstract; column 1, lines 37-67; column 2, lines 1-30 and 58-67; column 3, lines 1-38 and 52-67; column 4, lines 1-21, 43-52, and 58-62; column 4, lines 32-54; and Figures 1-5).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the method of casting a supercharger rotor, as disclosed by Timuska et al., by using the helical shaft with left and right handed helical grooves that cross each other, as taught by Miyashita, in order to increase the casting surface area, thus obtaining stronger fusion bonding of the cast metal to the cylindrical interface of the cross-helical shaft, resulting in a strongly bonded integral cast structure, and by further using a plurality of cutting tools used in parallel in lathe work to cut multiple screw threads simultaneously, as disclosed by Gradel, in order to use the same lathe, thus reducing time that would otherwise be spent on successive machining operations (Gradel; column 1, lines 37-57).

Response to Arguments

7. The examiner acknowledges the applicants' amendment received by the USPTO on October 20, 2004. The amendment overcomes prior objections to the specification, as well as all prior 35 USC 112, 2nd paragraph rejections. However, objections to the

abstract and claim 6 have been raised by the amendment (see paragraphs 1 and 2 above). The applicants have cancelled claim 3, while adding new claims 6 and 7. Claims 2, 6, and 7 are currently under consideration in the application.

8. Applicants' arguments filed October 20, 2004 (regarding independent claim 2) have been fully considered but they are not persuasive.

With regard to the applicants' arguments on pages 11-14 of the amendment, the applicants' major argument is that the claim 2 amendment to change "providing" to "cutting" in step (A) would overcome the 35 USC 103(a) rejection of Timuska et al. in view of Miyashita, as the applicants state that neither of the references discloses a "cutting" step. The examiner respectfully disagrees, as Timuska et al. disclose that "the shaft 8 has been milled-out slightly, so as to form helical edges or lands 10" (column 3, lines 1-2). Milling is a type of cutting, and a helical surface is clearly formed on steel shaft 8. As shown in Figure 2 of Timuska et al., the shaft 8 having helical edges/lands 10 is placed in a mold 20. Although cutting of a single helical portion is disclosed by Timuska et al., the formation of both left and right helical portions on the shaft surface is not taught in the reference. However, Miyashita discloses formation of both left and right helical cross portions (see Figure 6) by knurling (formation of ridges and grooves on a surface, in which grooves are "cut" between adjacent ridges), such that ridges 1a (and grooves therebetween) of the left and right helical portions cross each other. Since Timuska et al. disclose milling/cutting of a single helical portion, the teaching of the formation of left and right helical portions by Miyashita does not teach away from the

disclosure of the primary reference to Timuska et al., as both references are drawn to forming helical portions on cylindrical shafts for use in subsequent casting processes. The crossing left and right helical portions of Miyashita serve to increase the casting surface area, thus obtaining stronger fusion bonding of the cast metal to the cylindrical interface of the cross-helical shaft, resulting in a strongly bonded integral cast structure. As a result, independent claim 2 remains rejected under 35 USC 103(a).

9. Applicant's arguments with respect to claims 6 and 7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Pakos reference is also cited in PTO-892.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns* 11/24/04
Examiner
Art Unit 1725

KPK
kpk
November 24, 2004